

5 MARCH 1997

Civil Engineering

PLANNING AND DESIGN OF AIRFIELDS



COMPLIANCE WITH THIS PUBLICATION IS MANDATORY

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Supersedes AFI 32-1026, 1 April 1994.

Pages: 4
Distribution: F

This instruction implements AFPD 32-10, *Installations and Facilities*, by providing guidance to personnel responsible for planning, developing, siting, and layout of runways, taxiways, aprons, pads, and support facilities for fixed and rotary winged aircraft. It provides reference to the documents that contain the criteria and standards for these facilities and establishes a waiver process for deviations from these criteria and standards. Use this instruction with AFR 86-5, *Planning Criteria and Waivers for Airfield Support Facilities*, and joint publication AFR 86-14/TM 5-803-7/NAVFAC P-971, *Airfield and Heliport Planning Criteria*, until they are incorporated into and superseded by joint publication AFJMAN 32-1013, *Airfield and Heliport Planning and Design*, currently under development.

SUMMARY OF REVISIONS

This revision incorporates Interim Change (IC) 97-1 and corrects all references to the joint manual that will replace and supersede AFR 86-5, *Planning Criteria and Waivers for Airfield Support Facilities*, and joint publication AFR 86-14/TM 5-803-7/NAVFAC P-971, *Airfield and Heliport Planning and Design*. It also updates functional address symbols. A | indicates revisions from the previous edition.

1. Purpose. This publication provides the minimum safe standards for planning, developing, and designing new airfield facilities.

2. Applicability. These standards apply to US Air Force units located on military installations under DoD control, and, to the maximum extent possible, to tenant organizations on civil airports. Otherwise, Federal Aviation Administration (FAA) criteria apply. They apply to installations in the United States, its territories, trusts and possessions, and (unless otherwise noted) installations overseas upon which the United States has vested base rights. Some material in this publication is included in standards of the Air Standardization Coordinating Committee and the North Atlantic Treaty Organization (NATO). HQ USAF may use NATO standards in lieu of the standards implemented by this AFI. **Note:** *These stan-*

dards do not apply to existing facilities unless conditions impair operational efficiency and safety. However, construction to modify existing facilities will conform to the standards established in this document.

3. Criteria and Standards. See AFJMAN 32-1013, for detailed planning and design criteria and standards for airfields. These criteria and standards include dimensions, clearances, and grades for airfield or heliport operational areas, as well as geometric configurations and slopes of the surrounding airspace.

4. Waivers to Criteria and Standards:

4.1. Waiver Authority. Except as noted, major commands (MAJCOM) may waive deviations from airfield and airspace criteria in AFJMAN 32-1013, if the deviation is on land under Air Force jurisdiction. The responsible MAJCOM/CE approves the waiver after concurrence by MAJCOM/XO/SE and coordination with all appropriate staff offices. The appropriate staff office for the Air National Guard (ANG) is ANGRC/CEPD. This authority is not delegated below MAJCOM level. The following are exceptions:

- Permanent waivers may require approval or coordination from various field operating agencies when AFI 32-1042, *Standards for Marking Airfields* (formerly AFR 88-16) or AFI 32-1044, *Visual Air Navigation Systems* (formerly AFR 88-14) standards apply.
- Waiver approval is required according to AFI 13-209, Instrument Procedure Design and Publication (formerly AFR 60-27, volume 2), when deviations from criteria in AFI 32-1044 would constitute deviations from the instrument procedure criteria or obstructions to air navigational criteria in AFI 13-209 or AFJMAN 11-226 (formerly AFM 55-9), US Standard for Terminal Instrument Procedures (TERPS).
- Authority is delegated to the installation Commander when temporary waivers for construction activities are involved.

4.2. Deviations From Criteria For Land Not Under Air Force Jurisdiction. Refer waivers to airfield and airspace criteria on land not under Air Force jurisdiction to HQ AFCEA/CES for resolution, except as noted.

4.3. Conditions When Waivers May Be Granted. Waivers may be granted (except as noted in paragraphs 4.1 and 4.2) when:

- Installation, construction, or erection of a required facility or equipment item (according to criteria in AFJMAN 32-1013) is not practical.
- Removal of the cause of the violation of criteria is not economical or practical.
- The deviation from criteria is temporary (resulting from necessary construction or using experimental equipment for a specified period of time, not to exceed 1 year).
- Waivers may not be in effect for more than 1 year.

4.4. Temporary Waivers. Obtain temporary waivers for obstructions caused by construction activities on the airfields. These obstructions may pose a greater hazard to flying than familiar permanent structures.

4.5. Permanent Waivers. Use a permanent waiver when:

- Natural geographical features violate criteria, and it is not economical or practical to remove them.

- Existing construction deviates from criteria but removal is not feasible. Examples of such deviations are railroads through the clear zone, structures located on the apron (experimental equipment for ongoing testing, such as aircraft arresting barrier facilities), and structures that meet primary surface distance criteria but penetrate the 7:1 transitional slope.

5. Responsibilities:

5.1. HQ AFCEA/CESC:

- Develops siting, layout and transition surface criteria and standards for airfields, heliports, and support facilities. Coordinates these criteria and standards with the appropriate Air Force and DoD offices, the FAA and international organizations.
- Recommends policy on waivers and provides technical assistance on the waiver program.
- Processes and coordinates inquiries and necessary actions for deviations to criteria and standards on land not under Air Force jurisdiction.

5.2. AFFSA/XO:

- Approves or disapproves all requests for waivers (operational requirements) to siting criteria and airspace requirements in AFI 13-209 or AFJMAN 11-226. Processes requests for waivers according to AFI 13-209.
- Helps MAJCOMs select a site for air traffic control towers by conducting field surveys and providing technical assistance.
- Provides the technical requirements for siting electronic air navigational facilities through the proper installation engineering activity.
- Reviews all requests for waivers to instrument procedure criteria in AFI 13-209 or AFJMAN 11-226.

5.3. MAJCOM/CE:

- Ensures all bases implement standards and criteria.
- Provides management and technical assistance to bases.
- Coordinates with flight operations and flight safety offices to grant waivers.
- Sets and enforces reasonable safety precautions.
- Monitors actions to correct temporarily waived items within specified periods.
- Establishes procedures to ensure an annual review of all waived items.
- Establishes the administrative procedures for processing waivers.
- Maintains (for record) one copy of all pertinent documents relative to each waiver, including a record of staff coordination on actions at base and command levels.

5.4. Base Civil Engineer:

- Ensures siting and layout for new construction meet airfield and airspace criteria and standards.
- Coordinates all projects on joint-use airfields with the Federal Aviation Administration and the civilian airport authorities.
- Coordinates with base flight safety and flight operations offices to request waivers.

- Develops a Military Construction Program or other project to systematically correct waivers.
- Presents a summary of waived items to the Facility Board each year for information and action.
- Establishes a procedure for recording, reviewing, and acting on waivers. Maintains records similar to those required at the MAJCOM.
- Requests a temporary waiver from the installation commander for construction project within the runway lateral distance criteria of clear zone of an active runway or aircraft movement area. The base must request a temporary waiver at least 45 days before the scheduled construction start date, or an emergency temporary waiver when 45 days are not possible. **NOTE:** Quick reaction or emergency maintenance and repair requirements are exempt from this requirement; however, Base Civil Engineer will coordinate with base flight safety and flight operations offices to ensure implementation of safety measures.
- Advises the MAJCOM of any change in conditions that required the waiver, and requests an amendment, if appropriate.
- Advises the MAJCOM of any canceled waivers.

5.5. ANGRC/CEP. For ANG installations:

- Develops policy on waivers and manages the ANG waiver program.
- Processes and coordinates inquiries and actions for deviations to criteria and standards.
- Informs AFCESA of all waiver actions.

6. Referenced Publications: AFI 13-209, Instrument Procedure Design and Publication (formerly AFR 60-27, volume 2)

AFI 32-1042, Standards for Marking Airfields (formerly AFR 88-16)

AFI 32-1044, Visual Air Navigation Systems (formerly AFR 88-14)

AFJMAN 32-1013, Airfield and Heliport Planning and Design Criteria (future replacement for AFI 32-1026, AFR 86-5, and AFR 86-14)

AFJMAN 11-226, US Standard for Terminal Instrument Procedures (TERPS) (formerly AFM 55-9)

AFR 86-5, Planning Criteria and Waivers for Airfield Support Facilities

AFR 86-14, Airfield and Heliport Planning Criteria

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